

Are Two Channel Presentations Superior To One Channel Presentations? ¹

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Teaching Tip # 1

Although it seems apparent that two channel presentations are superior to one channel presentations, there have been a number of studies conducted to test this belief. A number of studies have generated the following findings: a.) Using audio media along with other media may enhance understanding of content, b.) Using audio to direct attention in a visual is essential to avoiding misinterpretation of the visual's message, and c.) Audio is much more capable of commanding attention when used as an interjection on the visual media (Thompson, Simonson, Hargrave, 1992).

Other recent studies have examined the Dual Processing Theory of Working Memory. This theory proposes that there are two working memories, one for the audio channel and one for the visual channel, each with a limited capacity. Effective learning takes place when representations are taken in by each store, organized, and then connections are made between the stores (Mayer, Moreno, 1998). Further, when one channel is used to convey all information (example: using written text as part of the visual instead of audio) the limited store of the one channel often is stretched beyond its

capacity, creating what is called a cognitive overload.

Mayer and Moreno conducted a study on two groups of college students. One group received two channel instruction from a video while the other received one channel instruction using the same visuals, but with the audio track replaced by written text. The results were consistent: The students that received instruction through both the audio and the visual channels had greater retention of content than those that received instruction through one channel. This Split-Attention Effect in multimedia learning is a compelling reason for teachers to incorporate two channels in their instruction.



References:

- Thompson, A.D., Simonson, Michael R., Hargrave, Constance P. (1992). *Educational Technology: A Review of the Research*. Washington DC: ACET
- Mayer, R.E., Moreno, R. (1998). A Split Attention Effect in Multi-Media Learning: Evidence for Dual Processing Systems in Working Memory, *Journal of Educational Psychology*.

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